Objective:
Develop a Cell Phone to Landline System

- Basic cell phone functionality from a landline phone
  - Make cell phone calls from your home phone
  - Answer cell phone calls from your home phone
- Additional features
  - Voicemail
  - Speed dial

- Can replace or co-exist with existing landline service
  - Pay only one monthly phone bill

Design:
CellSync connects a cell phone to a landline phone. CellSync allows users to send and receive cell phone calls from their landline phone. The CellSync method uses the Asterisk software, a Telephone Network Interface Card (TNIC), and Bluetooth to route cell phone calls to a landline phone.

Block Diagram:

Asterisk is a telephony networking engine and toolkit. The Telephone Network Interface Card (TNIC) communicates between the landline phone network and Asterisk. Chan-Mobile communicates between a cell phone and Asterisk via Bluetooth. CellSync uses chan-mobile to route cell phone calls to Asterisk, which then routes calls to a landline phone.

System Overview:
Before calling the user must:
1. Connect landline service to the FXO (Green) port on the system
2. Connect landline phone to the FXS (Red) port on the system
3. Add cell phone to system profile using CellSync menu
4. Pair cell phone and system using the pin number 1234

For incoming calls:
1. Incoming calls are recognized by Asterisk
2. Asterisk recognizes the FXO port the call originated from (Cell phone or Landline)
3. Asterisk sends ringing signal to the landline phone
4. Call continues as normal
5. Unanswered calls are redirected to voicemail
6. Calls to cell phone redirect to cell phone voicemail; calls to landline redirect to system voicemail

For outgoing calls:
1. Dialing 9 + 10 digit phone number initiates cell phone call
2. Dialing 6 + 10 digit phone number initiates landline call
3. Cell phone calls are routed through the cell phone via Bluetooth
4. Landline calls are routed through the FXO port on the TNIC
5. Call continues as normal

Pictures:
The CellSync method is executed on our prototype system shown to the left. The CellSync menu is shown to the top right. A mock-up of a marketable CellSync product is shown to the right.

Acknowledgments:
We would like to thank...
- Gary Draving
- Bob DeKraker
- Michelle Krul
- Professor Robert Bossemeyer
- Professor David Wunder

Team Members: Keith Conrad, Matt Gardner, Andrew Stutzman, Jeff Enahoro, Phil Overbeeke